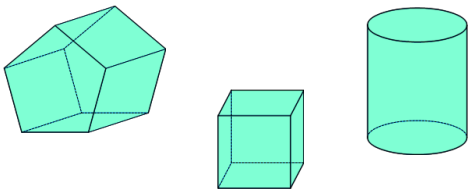
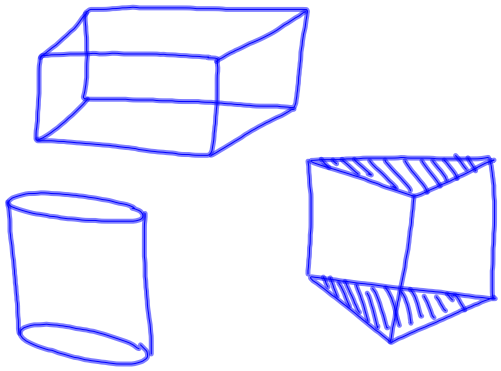
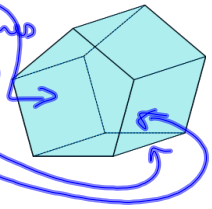
Prisms and Cylinders

12-2
12-4



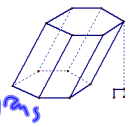


bases – ≅ polygons in parallel planes
lateral faces (rectangles)
lateral edges
altitudes ht (distance b/w bases)



right prism – each lateral edge ⊥ to both bases

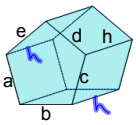
oblique prism



lateral faces are parallelograms

Lateral Area--(L) or (LA)--sum of the areas of the lateral faces

Surface Area--(S) or (SA)--sum of the areas of all of the faces



LA = $ah + bh + ch + dh + eh$

$h(a+b+c+d+e)$

$LA = Ph$ → ht of prism

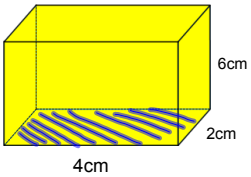
P = perimeter of base

LA = ph p = perimeter of base

SA = LA + 2B B = area of the Base

V = Bh

ex 1:



p = 12cm

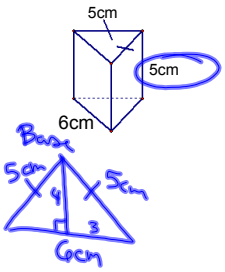
B = $8\ cm^2$

LA = ph
$12 \cdot 6 = 72cm^2$

SA = $LA + 2B$
$72 + 2(8) = 88cm^2$

V = Bh
$8 \cdot 6 = 48cm^3$

ex 2:



p= 16cm

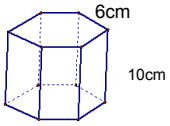
B = $\frac{1}{2}$ 4·6 = 12cm²

LA = ph
16·5 = 80cm²

SA = 80 + 2(12) = 104cm²

V = Bh
12·5 = 60cm³

ex 3: Base is regular.



p=

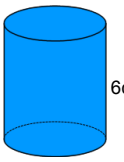
B =

LA =

SA =

V =

ex 4:



r = 4cm

p= 2πr C = 8π cm

B = πr² 16π cm²

LA = 8π·6 = 48π cm²

SA = 48π + 2(16π) = 80π cm²

V = 96π cm³
16π·6

ex 5: Work backwards.

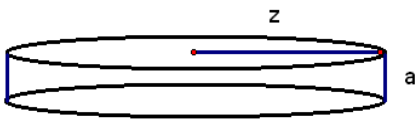
Cylinder
V = 768π u³
h = 12 units

V = Bh
V = πr²h
768π = πr²12
64 = r²
8 = r

r = 8 u
C = 16π u
B = 64π u²
LA = 16π·12 = 192π u²

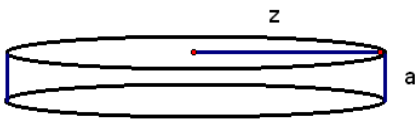
SA = 192π + 2(64π)
320π u²

Find the volume of a cylinder with a radius of z and a height of a.



V = Bh
= πz²·a
Pi zza

Find the volume of a cylinder with a radius of z and a height of a.



V = π z² a
= pi zz a

HW
p806-809
#s 3, 4, 6-8, 14, 28a
p823
#s 6, 7, 11, 18